HP SureStore 5200ex Optical Disk Drive

User's Guide

Edition 1

HP Part No. C1114-90015

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Printing History

New editions of this manual incorporate all material updated since the previous edition. The manual printing date and part number indicate the current edition. The printing date changes when a new edition is printed. (Minor corrections and updates incorporated at reprint do not change this date.)

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Typographical Conventions

The following typographical conventions are used in this manual:

Emphasis: Denotes important information.

Keycap: Keys on the library.

`Computer Output`: Information displayed in the display window and screen menu items that you can select.

WARNING **Warnings call attention to a procedure or practice that could result in personal injury if not correctly performed. Do not proceed until you fully understand an meet the required conditions.**

CAUTION Cautions call attention to an operating procedure or practice that could damage the product if not correctly performed. Do not proceed until understanding and meeting these required conditions.

NOTE Notes provide information that can be helpful in understanding the operation of the product.

In This Manual

This user's guide includes:

Chapter 1	set-up information for the HP SureStore Optical 5200ex optical disk drive
Chapter 2	information about choosing and using optical disks
Chapter 3	front panel control description, operating instructions, and troubleshooting information
Appendix A	supplies and customer support
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1 Setting up the Disk Drive

Setting up the Disk Drive

This chapter discusses the environment, hardware and procedures that are necessary to connect a 5200ex optical disk drive to the host computer:

- preparing the environment
- understanding the rear panel
- setting the disk drive address
- choosing and setting the operation mode
- connecting the disk drive to a host computer

Preparing the Environment

The following environmental factors will help ensure top performance of your optical disk drive.

Clearance Requirements

A minimum of 70-80 mm (3 in) is required behind the rear panel and in front of the disk drive for air circulation.

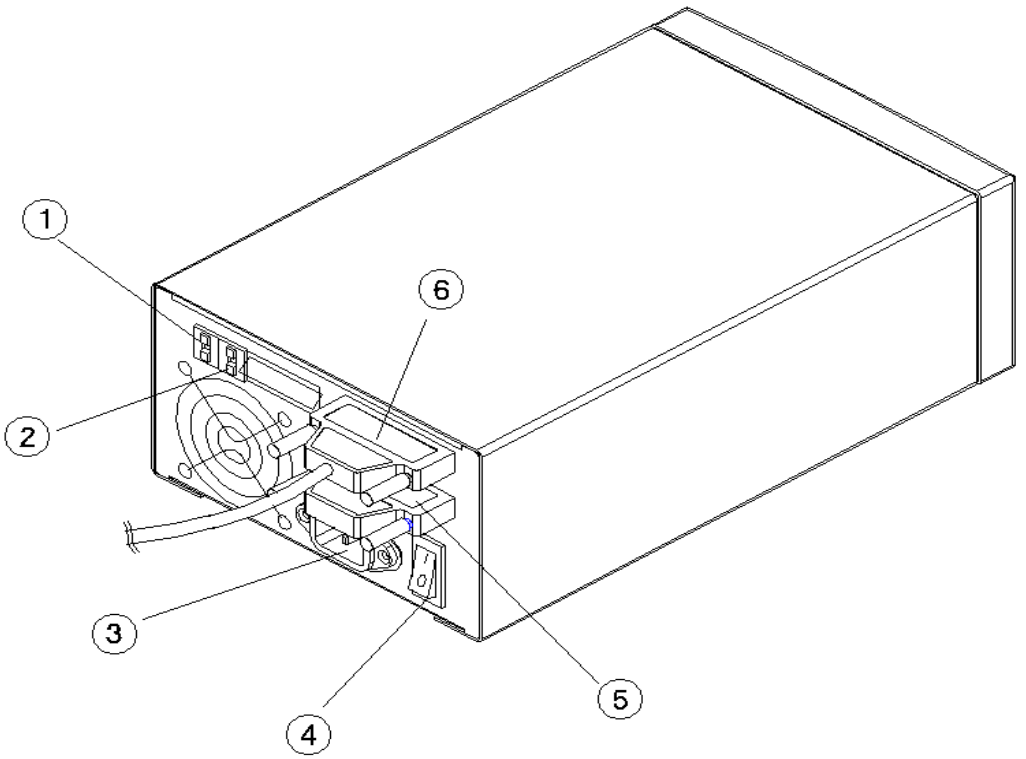
Location Requirements

Position the drive away from sources of particulate contamination such as frequently-used doors and walkways, printers, stacks of supplies that collect dust, and smoke-filled rooms.

Rear Panel Features

Identify the following rear panel features before you connect the optical disk drive to the host system.

Figure 1-1 **Rear Panel Features**



The following numbers correspond to the numbers in the drawing on the previous page.

1	SCSI ID switch	Used to set the SCSI ID. Refer to “Setting the SCSI ID” in this section.
2	Operation mode switch	Used to choose the operating mode and set your preference for write verify. Refer to “Setting the Operation Mode” in this section.
3	Power connector	Receptacle for the power cord.
4	On/Off switch	Used to switch power on or off.
5	SCSI connector (with terminator attached)	50-pin high-density SCSI connector (Micro D-type). Terminator may be attached to either connector (see “6”). A terminator must be plugged into either “5” or “6” when the drive is the last physical device on a SCSI bus.
6	SCSI connector (with cable attached)	50-pin high-density SCSI connector (Micro D-type). Cable may be attached to either connector (see “5”). A terminator must be plugged into either “5” or “6” when the drive is the last physical device on a SCSI bus.

Connecting the Drive to Your Host Computer

The disk drive is a “narrow,” single-ended SCSI-2 device. This means that the drive connects to a 50-line single-ended-type SCSI bus using 50-pin high-density connectors.

You can connect the drive to a SCSI bus either as the only device on the bus or as one of a number of devices on the bus (daisy-chained).

The SCSI ID you choose for this drive identifies the drive on the bus and also sets its priority for use of the bus. If you would like more information on the operation of the SCSI bus, refer to Appendix B. Also, refer to your host adapter’s documentation for guidance on installing this drive on the bus.

The following sections will describe the steps to install this drive onto the bus. You must do the following:

- Determine and set the drive’s operating mode
- Determine and set the SCSI ID of the drive
- Attach the bus cable and ensure the bus is properly terminated

Setting the Operating Mode and Write Verify

This drive may be operated in two modes:

- as an optical memory device
- as a direct access device

In most cases, you can select the optical memory device mode (which is the default setting). Choose the “direct access device” mode if your system does not support optical memory devices or if your system requires a direct access device. Check your system documentation to determine which mode to select.

In either mode of operation, you have the choice of write verify on or off.

The write verify configuration *ensures* that data is written reliably to an optical disk. The drive ships with write verify enabled. Many software applications also default to this method of writing.

Writing data on a magneto-optical disk requires two passes. The first pass erases the data in the sector to which data will be written. The second pass writes new data to that sector.

When write verify is configured to ON, an additional pass is made over the sector. This third pass verifies that all data is written correctly to the sector. To add to the reliability of your data, Hewlett-Packard recommends that you maintain the default ON setting for write verify. Note that when write verify is ON, write operations take more time.

To set the device mode and the write verify mode:

1. Determine which operating mode you need (optical memory device or direct access device) and whether you want write verify ON or OFF.

   The following are the selections available on the mode switch:

   - 2 - optical memory device with write verify ON (default).
   - 0 - optical memory device with write verify OFF.
   - 1 - direct access device with write verify OFF.
   - 3 - direct access device with write verify ON.

2. Set the operating mode.

   a. Locate the operation mode switch on the rear panel of the disk drive (see “2” on Figure 1-1).

   b. Set the operation mode by pushing the button on the top or bottom of the window (as explained below) with a small screwdriver or the point of a pen:

      - the button above the mode window decreases the number by one
      - the button below the mode window increases the number by one

NOTE If you change the operation mode with power on, you must power cycle the drive for the mode to take effect.

Setting the SCSI ID

CAUTION Before disconnecting power to any device on the SCSI bus, make sure the bus is inactive. Switching off power while the SCSI bus is active can result in data loss or indeterminate bus states.

1. Turn drive power OFF (“4” on Figure 1-1).
2. Check which SCSI addresses are available. Usually the host bus adapter is set to 7 and the addresses available are in the range 0 to 6.

   The default SCSI ID setting of this drive is 4.

3. Locate the SCSI ID switch on the rear panel of the disk drive (see "1" on Figure 1-1.
4. Set the SCSI ID by pushing the button at the top or bottom of the window (as explained below) with a small screwdriver or the point of a pen:
   - the button above the ID window decreases the number by one
   - the button below the ID window increases the number by one

NOTE If you change the SCSI ID with power on, you must power cycle the drive so that the host recognizes the new ID.

Cabling and Termination

NOTE This drive is a SCSI "fast" device. The maximum allowable length of the SCSI cable cannot exceed 3 meters (4.9 feet), including the internal cable length of all peripherals on the bus.

Use 0.5 meter (1.6 ft) as the internal SCSI cable length of this drive.

1. Plug one end of the power cord into the AC line connector on the back of the optical disk drive and the other end into the power outlet.
2. Press the power switch on the rear of the optical disk drive so that it is in the "ON" position (press "1").
3. Switch on the power to the host computer (or if the host computer has been on during this installation, powercycle the host computer so that it will "see" this disk drive.

NOTE For some host computers to recognize the optical disk drive, the power to the disk drive must be switched on *before* the power to the host computer.

4. Install the drivers appropriate for your host operating system.

   The Software Architects drivers shipped with this drive enable you to read and write 8X disks with the following operating systems:

   - MAC OS8
   - DOS
   - Windows 3.1 and Windows 95
   - Windows NT 3.51 and 4.0

NOTE

A few platforms provide native support for this drive.

A current list of platforms supporting this drive and platform-specific instructions for connecting the drive to the host computer system are in:

www.hp.com/isgsupport/optical/index.html.

Configuring to an HP-UX 10.2 / 11.0 Host

Obtaining HP-UX Patches

Your HP-UX system may require software patches to ensure that the 5200ex will install and operate correctly with your system.

If you have access to the World Wide Web, do the following steps:

1. Browse the following URL on the World Wide Web to determine and record which (if any) patches are required for your system:

   http://www.hp.com/go/optical

2. Download the required patch IDs from the following URL:

   USA
   http://us-support.external.hp.com
   EUROPE
   http://europe-support.external.hp.com

If you do not have access to the World Wide Web, do the following steps:

1. To obtain the current list of patches needed for Hewlett-Packard optical products, send email to:

   ssdg_tech_sup@hpgrla.gr.hp.com

   Subject: (none)

   Text: (none)

2. To receive instructions for downloading required HP-UX patches via email, send an email message to:

   support@support.mayfield.hp.com

   Subject: (none)

   Text: send guide.txt

3. Download the patches via email from the HP Support Line HP-UX email patch server using the simple instructions in the user's guide received in response to the email request in Step 2.

Configuring the Drive in a 10.2 / 11.0 System

Use the System Administration Manager (SAM) to configure the 5200ex to an HP-UX 10.0 host system:

1. Log into your host system as superuser, then type sam.
2. Highlight and select *Disks and File Systems*.
3. Highlight and select *Disk Devices*.
4. Highlight the optical disk drive. (SAM calls it a "SCSI Optical Disk Drive”.)
5. Choose *Add...* and *Not Using Logic Volume Manager* from the “Actions” menu.

   Your HP-UX system configuration now includes the optical disk drive.

2 Using Optical Disks

Overview of This Chapter

Using Optical Disks

The optical disks that you use with this drive are an integral part of the storage process. This chapter provides information on the following topics:

- choosing an optical disk type
- labeling optical disks
- write-protecting optical disks
- caring for optical disks

NOTE The optical cartridges used in this drive are a critical part of reliable data storage.

Optical cartridges consist of an opto-magnetic medium and mechanical components. Consistent quality of opto-magnetic media ensures correct “writes” and “reads.” The quality and fit of the mechanical components of the cartridge affect accurate, smooth handling of the cartridge by the drive. A failure of the mechanical components of a cartridge could damage the drive mechanism.

CAUTION Use only HP-qualified media cartridges. Use of non-HP-qualified optical cartridges could damage the drive and void the warranty.

NOTE A list of Hewlett-Packard optical media cartridges is in Table A-1 of Appendix A.

If you are not using HP media, please refer to the list of HP-qualified manufacturers on the website:

www.hp.com/isgsupport/optical/index.html

Choosing an Optical Disk Type

Two disk types can be used in this drive: rewritable disks and write-once disks.

To choose which type of disks to use, consider these points:

- Rewritable optical disks--data can be repeatedly written and erased.
- Write-Once optical disks--data can be written only once, and the data cannot be altered or erased. If you have a need for data security and audit trails, write-once disks may be a good disk choice.
- Both rewritable and write-once disks come in three sector sizes: 2,048 bytes/sector, 1,024 bytes/sector, and 512 bytes/sector. The sector size you choose depends upon what type of operating system you have in your host computer.

NOTE

Do not use write-once disks in a computer system that does not support write-once disks. Check that your application software supports write-once disks.

Labeling an Optical Disk Cartridge

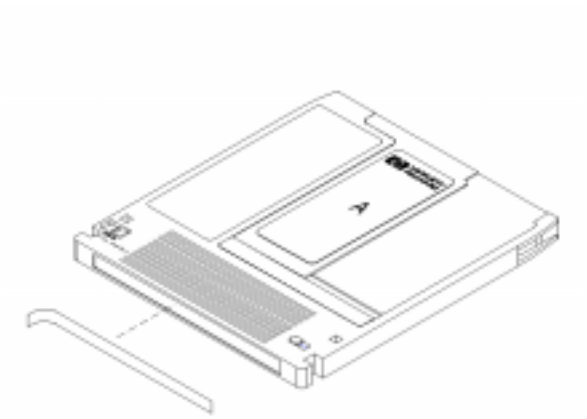
Make it a practice to label your optical disk cartridges. You are provided adhesive labels with each disk for this purpose. Here are some suggestions for labeling:

- date of format or initialization
- disk owner (group, department, etc.)
- storage purpose (backup, old version of operating system, etc.)

HP recommends using end labels as shown in Figure 2-1. End labels reduce the chance of label material interfering with the cartridge shutter and causing a drive to jam.

CAUTION Labels used in the vicinity of the shutter may cause the drive to jam if the label is installed incorrectly or if portions of the label lift off because of wear. If a drive jams because the label interferes with the shutter the drive may have to be serviced.

Figure 2-1 **Recommended Placement of Cartridge Labels**



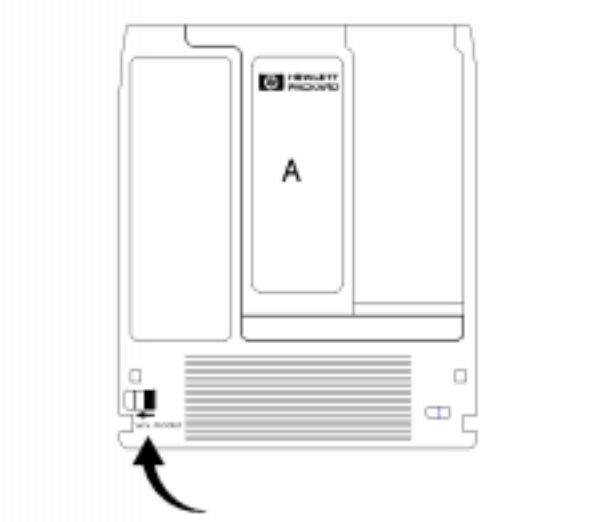
Write-Protecting an Optical Disk

Each side of an optical disk can be write-protected by sliding the write-protect button in the direction of the arrow on the cartridge (see Figure 2-2).

With rewritable optical disks, write-protecting the disk prevents overwriting existing files and prevents any additional file being written to the disk.

With write-once optical disks, existing files cannot be altered or erased regardless of whether or not the write-protect button has been set. However, setting the button to write-protect prevents writing additional files to the disk.

Figure 2-2 **Write-Protect Button Location**



Caring for Optical Disks

Follow these guidelines to ensure that your optical disks remain in good condition:

- Do not expose disks to extreme magnetic fields.
- Do not expose disks to dust particles.
- Do not expose disks to extreme temperatures or extreme humidity.
- Do not drop the disks.
- Do not open a disk's metal shutter and touch the disk surface.
- Do not take disks apart.
- Do not insert disks with loosely-attached labels into the drive.
- Remove old disk labels before applying new ones especially if you choose to place labels on the sides of the cartridge (near the shutter) rather than on the end of the cartridge.
- Store disks in a clean, safe place when they are not in use.

Cleaning Disks

Normally, an optical disk does not require cleaning when used in a computer room or clean office environment. If you are in an extremely dusty environment and are experiencing difficulties reading and/or writing to a particular disk you may want to clean the disk to see if this corrects the problem.

CAUTION

Be very careful when cleaning an optical disk. Abrasive particles dragged across the disk surface can damage the disk and prevent recovery of some or all of the data on the disk.

Clean a disk only with a disk cleaning kit. Follow the disk cleaning kit instructions exactly.

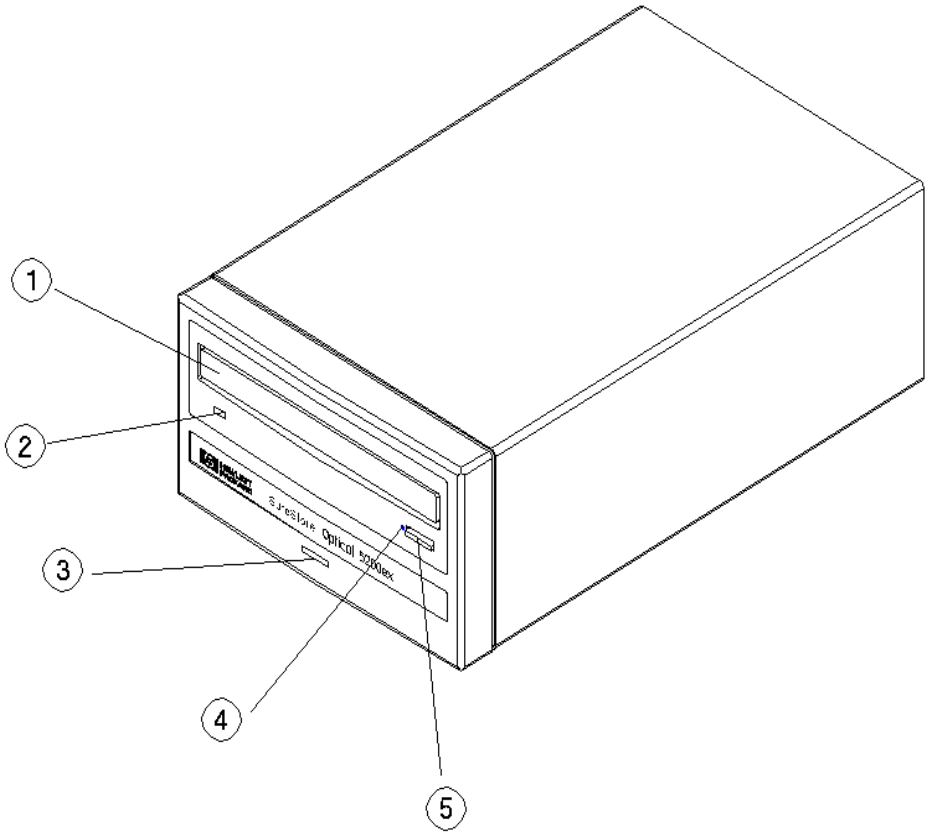
The order numbers for manual and automated disk cleaning kits are in Table A-1, Appendix A.

3 Operating the Disk Drive

Operating the Disk Drive

This chapter explains the features used to operate the disk drive.

Figure 3-1 **Front Panel Features**



Identifying Front Panel Features

The following list of features corresponds to the numbers in Figure 3-1:

1)	Disk slot	The opening for inserting/retrieving optical disks
2)	Activity indicator	Lit when the drive is accessed and while the drive is loading or ejecting a disk.
3)	Power indicator	Remains lit while the power is on
4)	Eject tool opening	An access hole for the eject tool. In an emergency, such as a power outage, the disk can be manually ejected by inserting the eject tool into this opening. See “Manually Ejecting Disks” on the next page.
5)	Eject button	Pressed to eject the disk from the drive. The drive power must be ON.

Loading a Disk Into the Drive

NOTE

Use only the highest quality media in this drive. A list of guaranteed Hewlett-Packard media is in Table A-1 in Appendix A.Optical cartridges use both opto-magnetic media and mechanical components. A failure of the mechanical components of a cartridge could damage an optical drive and void the warranty.

If you are not using HP media, please refer to the list of HP-qualified manufacturers on the website:

www.hp.com/isgsupport/optical/index.html

Insert the disk gently but firmly into the opening on the front panel, shutter end first, and with the side you want to access facing up (A or B).

The drive automatically pulls the disk fully into position.

Ejecting a Disk Using the Disk Eject Button

Press the eject button to the right of the disk slot (see “5” on Figure 3-1).

Manually Ejecting Disks With Power Off

The drive does not automatically eject a disk cartridge if a power failure occurs. An eject tool is shipped with the drive to use for manually ejecting a disk.

Follow these steps to manually remove a disk from the drive:

1. Disconnect all power to the drive.
2. Insert the eject tool into the small round hole in the front panel of the drive (see “4” on Figure 3-1).
3. Push the eject tool firmly. The disk will eject.

NOTE

After ejecting a disk, the drive remains in “eject position” until power is restored. At that time, the drive automatically resets itself.

Troubleshooting

Problem	What to Do
Drive will not power on	• Check that the power indicator light on the drive front panel is ON ("3" on Figure 3-1). If light is not ON, make sure the power switch on the rear panel is ON. • Check that the cooling fan is running (on rear panel). If the fan is not running, check that the power cord is connected and tight and the power outlet is operating. If the power cord is tight and the outlet is operating, replace the power cord with a known good one. • If steps above are unsuccessful, refer to Appendix A for further support services.

Problem	What to Do
Host computer system does not recognize the drive	• Ensure the disk is connected and ON. (The disk must be ON when booting the host computer for the disk to be recognized. The following steps attempt to bring the disk online without booting the host computer system. • In Windows 95 and NT, rescan the bus. - go to My Computer, Control Panel, System, Device Manager (in 95), and SCSI Controllers. Select the SCSI adapter where the drive should be. Select Refresh. • In HP-UX, use SAM to verify that the drive is on the bus and, if not, use SAM to install the driver. - Follow the menus in SAM • For Unix systems other than HP-UX, refer to the System Administrators Guide for diagnosing missing peripherals. • If the drive is the last one on the SCSI bus, check that the drive has an terminator plugged into one of the cable connectors (an active terminator is recommended). • Check SCSI ID assignments and resolve any conflict. • If steps above are unsuccessful, further information may be on the optical web site at www.hp.com/isgsupport/optical/index.html • If an answer is not on the web site, go to Appendix A for further support information.

Problem	What to Do
Other SCSI devices no longer work when this disk is installed	• There is probably a conflict in SCSI IDs. Check ID assignment • Refer to the instructions for your host adapter and review installation of devices on the bus.
Unable to read from a disk	• Check power and connections. See "Drive won't power on" discussed previously in this table • Does the host computer recognize the drive on the bus? See "Host system does not recognize the drive" discussed previously in this table. • Does the host computer recognize the drive on the bus? See "Host system does not recognize the drive" discussed previously in this table. • Does the disk have a valid file system? -If the disk does not have a valid file system, you must format the disk (Windows 95, NT) or do a media init (HP-UX). For other Unix systems, refer to your System Administrator's Guide to prepare the disk. • Is write verify enabled to ensure that information is being correctly written to the disk? ***Continued on the next page***

Problem	What to Do
Unable to read from a disk (continued)	• Can you read from another disk? • If in Windows 3.x, does your application support 1,024 bytes per sector media? • If in Windows 95 or NT and using 1,024 bytes per sector disks, boot your system with this density disk in the drive. • Is the environment dusty? If you are not having the same problems with other disks, you may want to clean the disk. See “Cleaning Disks” at the end of Chapter 2. • If steps above are unsuccessful, further information may be on the optical web site at www.hp.com/isgsupport/optical/index.htm • If an answer is not on the web site, go to Appendix A for further support information.

Problem	What to Do

Unable to write to a disk	• Check power and connections. See "Drive won't power on" discussed previously in this table.
	• Does the host computer recognize the drive on the bus? See "Host system does not recognize the drive" discussed previously in this table.
	• Is there a valid file system on the disk?
	  • If the disk does not have a valid file system, you will receive an error message.
	  • If the disk does not have a valid file system, you must format the disk (Windows 95, NT) or do a media init (HP-UX). For other Unix systems, refer to your System Administrator's Guide to prepare the disk.
	• Is the disk one of the following capacities: 2.3, 2.6, 4.6, or 5.2 gigabytes? This drive writes to only these capacities.
	• If in Windows 3.x and using 1,024 bytes/sector disks— refer to your application documentation to verify that your application supports this sector density.
	• If in Windows 95 or NT and using 1,024 bytes/sector disks— boot your system with this density disk in the drive.
	Continued on the next page

Problem	What to Do
Unable to write to a disk (continued)	• Eject the disk and check that the disk is a rewritable disk and that the write-protect tab is in the "write" position. • Try writing to another, similar disk. • Is the environment dusty? If you are not having the same problems with other disks, you may want to clean the disk. See "Cleaning Disks" at the end of Chapter 2. • If steps above are unsuccessful, further information may be on the optical web site at www.hp.com/isgsupport/optical/index.html • If an answer is not on the web site, go to Appendix A for further support information.
Disk "reads" are slow	• Is the environment dusty? If you are not having the same problems with other disks, you may want to clean the disk. See "Cleaning Disks" at the end of Chapter 2. • If cleaning does not correct the problem, further information may be on the optical web site at www.hp.com/isgsupport/optical/index.html • If an answer is not on the web site, go to Appendix A for further support information.

Problem	What to Do
Disk "writes" are slow	• Is write verify enabled? The verification pass increases the write time. • Is the environment dusty? If you are not having the same problems with other disks, you may want to clean the disk. See "Cleaning Disks" at the end of Chapter 2. • If cleaning does not correct the problem, further information may be on the optical web site at www.hp.com/isgsupport/optical/index.html • If an answer is not on the web site, go to Appendix A for further support information.
Host adapter does not work with this drive	Check that SCSI IDs for the host adapter and the drive are different.
The SCSI connector on the host computer and drive are different	Get a cable with the correct connector types. See table A-1 in Appendix A for cables offered by Hewlett-Packard.

If the suggestions in the troubleshooting table do not solve the problem, try accessing the HP web site at www.hp.com/isgsupport/optical/index.html for the latest information and frequently asked questions. If information from the website is not enough, refer to Appendix A for further support services available to you

A Supplies and Customer Support

Supplies and Customer Support

This section provides information on the following topics

- supplies and accessories
- HP customer support

Supplies and Accessories

A full range of computer supplies may be ordered through a Hewlett-Packard authorized dealer or sales office, or by phoning or writing HP Direct.

Call 1-800-752-0900 for the location of your nearest authorized Hewlett-Packard dealer.

To contact a Hewlett-Packard sales representative, see Table A-2 for a list of addresses and phone numbers of HP sales offices.

To phone HP Direct call 1-800-538-8787; or write to HP Direct at the following address:

HP Direct
Hewlett-Packard
P.O. Box 58195
Santa Clara, California 95052

See Table A-1 for a list of basic supplies and accessories

Table A-1 **Basic Supplies and Accessories**

Item	HP Part Number
5.2- and 4.7-Gbyte Optical Disks	
Rewritable optical disk (2,048 bytes/sector, 5.2 Gbytes, single disk)	88147J
Rewritable optical disk (2,048 bytes/sector, 5.2 Gbytes, 8-pack)	C6299J
Write-once optical disk (2,048 bytes/sector, 5.2 Gbytes, single disk)	88146J

Item	HP Part Number
Write-once optical disk (2,048 bytes/sector, 5.2 Gbytes, 8-pack)	C6298J
Rewritable optical disk (1,024 bytes/sector, 4.7 Gbytes, single disk)	88143J
Rewritable optical disk (1,024 bytes/sector, 4.7 Gbytes, 8-pack)	C2589J
Write-once optical disk (1,024 bytes/sector, 4.7 Gbytes, single disk)	88145J
Write-once optical disk (1,024 bytes/sector, 4.7 Gbytes, 8-pack)	C2591J
2.6- and 2.3-Gbyte Optical Disks	
Rewritable optical disk (1,024 bytes/sector, 2.6 Gbytes, single disk)	92280F
Rewritable optical disk (1,024 bytes/sector, 2.6 Gbytes, 8-pack)	C2589F
Write-once optical disk (1,024 bytes/sector, 2.6 Gbytes, single disk)	92290F
Write-once optical disk (1,024 bytes/sector, 2.6 Gbytes, 8-pack)	C2591F
Rewritable optical disk (512 bytes/sector, 2.3 Gbytes, single disk)	92279F
Rewritable optical disk (512 bytes/sector, 2.3 Gbytes, 8-pack)	C2588F
Write-once optical disk (512 bytes/sector, 2.3 Gbytes, single disk)	92289F
Write-once optical disk (512 bytes/sector,2.3 Gbytes, 8-pack)	C2590F

Item	HP Part Number
SCSI Cables	
50-Pin Low-Density to 50-Pin High Density, male-to-male	
1.0 m (3.3 ft.) bail to thumb screw	K2296
1.5 m (4.9 ft.) bail to thumb screw	K2297
0.9 m (2.9 ft.) thumb screw to thumb screw	K2294
1.5 m (4.9 ft.) thumb screw to thumb screw	K2295
SCSI Terminators	
50-pin active high-density (molded)	C2904A
Disk Cleaners	
RA-2 Manual Disk Cleaner ProDisk Corporation US Tel.(612) 439-6202 Fax (612) 439-5946 (approximately US$30)	N/A
KA-1 Automatic Disk Cleaner ProDisk (see above) (approximately US$559)	N/A
Documents	
User’s Guide (replacement or additional)	C1114-90015

Hewlett-Packard Customer Support

If your drive fails during the warranty period, and the suggestions in this user's guide and accompanying documentation do not solve your problem:

- Consult the Quick FAX or HP FIRST (FAX information Retrieval Support Technology) facsimile assistance services.The phone numbers are under "Faxback Services" on the next page.
- Consult one of the computer/modem connectivity services available, such as America Online or CompuServe. The phone numbers are under "Electronic Support Services" later in this appendix.
- Contact your authorized HP dealer distributor

NOTE

Before calling, please record the following information and have it ready when you contact your service representative:

- model number of the drive
- serial number of the drive
- brand and model of your host computer SCSI adapter
- host computer operating system
- any software package you are using to manage storage on the drive

Should you need additional support, call the Customer Support Center in your region. FAX, electronic services and support center numbers are given on the following pages.

If your drive fails after the warranty period, contact your authorized HP dealer/distributor or the nearest HP sales and service office. Customers in the US and Europe can use a credit card for phone assistance. For details, see "Telephone Support After Warranty" in this appendix.

Faxback Services

Quick FAX and HP FIRST are automated systems that FAX requested product information and/or technical support documents to you. These faxback services are available 24 hours.

Simply dial the FAX number from a touch tone telephone or Group 3 facsimile machine and follow the voice prompts that guide you to select an index of available support an product documents.

Asia-Pacific	
Australia	(03) 9272 2627
China	(8610)-6505 5280
Hong Kong	2506 2422
India	+91 11 682 6041
Indonesia	(21) 352 2044
Japan	(3) 3335-8622
Korea	(02) 769-0543
Malaysia	(03) 290 2478
Netherlands	0800 22 2420
New Zealand	(09) 356 6642
Singapore	(65) 291-7951
Taiwan	(02) 719 5589
Thailand	(02) 661 3511
Europe	
Austria	0660 8128
Belgium	
Dutch	0800 11906
French	800 17043
Denmark	800 10453
Finland	0800 13134
France	05 905900

Germany	0130 810 061
Italy	1678 59020
Netherlands	06 022 2420
Norway	800 11319
Spain	900 993123
Sweden	020 795743
Switzerland	
German	0800 55 1526
French	0800 55 1527
United Kingdom	0800 960271
Other locations in Europe (toll line)	+31 20 681 5792
North and South America and Canada	(800) 368-9673 or (970) 635-1510
All other countries (to the US)	(970) 635-1510

Electronic Support Services

For 24-hour access to information over your modem, refer to the following listings.

On-line Service Providers

Technical information is available on CompuServe and America Online. (Compuserve and America Online are not operated by Hewlett-Packard.)

CompuServe	HP systems Forum, Go HPSYS
America Online	HP forum, Go HPSTOR

AccessHP and Support on the World Wide Web

Product and support information is available on the Hewlett-Packard web site:

Product information - www.hp.com
Support - www.hp.com/isgsupport/optical/index.html

Telephone Support During Warranty

To speak with someone for technical assistance within the hardware warranty of your product, call a support representative at the location appropriate to your location as listed below.

NOTE

Before calling, please record the following information and have it ready when you contact your service representative:

- model number of the drive
- serial number of the drive
- brand and model of your host computer SCSI adapter
- host computer operating system
- any software package you are using to manage storage on the drive

US - America's Customer Support Center

Monday - Friday, 7am - 5pm Mountain Time (970) 635-1000

Europe - European Customer Support Center

Monday - Friday, 8:30am - 5pm Netherlands Time

Austria	0660 6386	Germany	0180 5 25 81 43
Belgium		Netherland	020 606 8751
Dutch	02 626 8806	Norway	22 11 6299
French	02 626 8807	Portugal	01 441 7199
Denmark	3929 4099	Spain	902 321 123
Finland	0203 47288	Sweden	08 619 2170

France	04 50 43 9853	Switzerland	0848 80 11 11
Ireland	01 622 5525	United Kingdom	0171 512 5202
Italy	02 26410350		

English language support from other European countries:

+44 171 512 5202

Asia-Pacific - HP Customer Support Center

Australia	8:30 - 17:30 Mon-Fri	(03) 9272-8000
China	8:30 - 17:30 Mon-Fri	(8610) 62625666 x5602, 5609, 5611, 5612 (8610) 62 61 4174 (8610) 62 61 4175 (8610) 62 61 4176
Japan	9:00 - 1200 13:00 - 17:00 Mon-Fri	(3) 3335-8338
Korea	8:30 - 1900 Mon-Fri	(02) 3270-0700/ 080-999-0700 (toll free)
New Zealand	8:30 - 16:00 Wed AEST	(09) 356-6640
Singapore	9:00 - 17:00 Mon - Fri	(65) 271-7233
Taiwan	8:30 - 17:30 Mon - Fri	(02)717-9609

Elsewhere in the World to the US

(970) 635-1000

Telephone Support After Warranty

NOTE

Before calling, please record the following information and have it ready when you contact your service representative:

- model number of the drive
- serial number of the drive
- brand and model of your host computer SCSI adapter
- host computer operating system
- any software package you are using to manage storage on the drive

North and South America and Canada

Using your VISA, MasterCard, or American Express call:

(800) 810-0130 - Per incident fee of $25.00 charged to your credit card.

(900) 555-1800 - $2.50 per minute up to a maximum of $25.00 per incident. You must be 18 years of age or have parental permission to call this number.

Prices are subject to change without notice.

Europe

Call the numbers listed in the “Telephone Support Under Warranty” section. A per incident fee will be charged for after warranty support. Please have a credit card, PO number, or billing address ready.

Elsewhere in the World

Contact your authorized HP dealer/distributor or the nearest HP sales and service office.

Additional Telephone Support

Singapore Customer Care-Line for End-Users	(65) 272-5300

HP Reseller Locator Numbers

US	(800) 752-0900
Canada	(800) 387-3867
Mexico and South America	(305) 267-4220

Warranty

HP PRODUCT	DURATION OF WARRANTY
C1114J	One Year

1. HP warrants HP hardware, accessories and supplies against defects in materials and workmanship for the period specified above. If HP receives notice of such defects during the warranty period, HP will, at its option, either repair or replace products which prove to be defective. Replacement products may be either new or like-new.

2. HP warrants that HP software will not fail to execute its programming instructions, for the period specified above, due to defects in material and workmanship when properly installed and used. If HP receives notice of such defects during the warranty period, HP will replace software media which does not execute its programming instructions due to such defects.

3. HP does not warrant that the operation of HP products will be uninterrupted or error free. If HP is unable, within a reasonable time, to repair or replace any product to a condition as warranted, customer will be entitled to a refund of the purchase price upon prompt return of the product.

4. HP products may contain remanufactured parts equivalent to new in performance or may have been subject to incidental use.

5. The warranty period begins on the date of delivery or on the date of installation if installed by HP. If customer schedules or delays HP installation more than 30 days after delivery, warranty begins on the 31st day from delivery.

6. Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts or supplies not supplied by HP, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance.

7. TO THE EXTENT ALLOWED BY LOCAL LAW, THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND HP SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE.

8. HP will be liable for damage to tangible property per incident up to the greater of $300,000 or the actual amount paid for the product that is the subject of the claim, and for damages for bodily injury or death, to the extent that all such damages are determined by a court of competent jurisdiction to have been directly caused by a defective HP product.

9. TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED ABOVE, IN NO EVENT WILL HP OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE.

Obtaining Service

To maintain the warranty, you must have your optical drive serviced by an authorized repair depot in the country of original purchase. Return your optical drive to a Hewlett-Packard Dealer Repair Center or a designated Hewlett-Packard Repair Center. See the following pages for a list of designated Hewlett-Packard Repair Centers.Contact your Hewlett-Packard Dealer Repair Center for instructions before returning your optical drive for service. If you return your optical drive to a designated Hewlett-Packard Field Repair Center for service, you must prepay all shipping charges, duty, and taxes. Except for products returned to the customer from another country, Hewlett-Packard will pay for return shipment to the customer.

Before you send your optical drive to a Hewlett-Packard Dealer Repair Center or a designated Hewlett-Packard Field Repair Center, insure the optical drive and follow the re-packing guidelines below. Enclose a completed Service Information Form (on the following page), a copy of proof of purchase.

Service After the Warranty Period Expires

If your optical drive fails after the warranty period, contact an authorized Hewlett-Packard Dealer Repair Center or a designated Hewlett-Packard Repair Center. If you have a Hewlett-Packard Maintenance Agreement, request service under your agreement.

Repacking guidelines for returning your optical drive

1. Remove your optical disk from the drive.
2. Use the original shipping container and packing materials, if possible

3. Enclose the completed Service Information Form (included in this section).

Service Information Form

Make a photocopy of this form, complete it, and ship it with your equipment.

Service cannot begin until we have this information. Be sure you have followed the repacking guidelines listed earlier in this section of the manual. You will be returning your equipment to the HP Field Repair Center or an authorized HP Dealer Repair Center.

Who is returning this drive?

Company/Institution_____
_____

Date _____

Person to Contact_____Phone
_____

Alternate
Contact_____Phone_____
___

What is being sent?

Model Number_____ Serial Number _____

Have you included an optical disk? Yes_____ No _____

Returning Shipping Address:

_____

_____

How will you pay for the repairs?

Except for contract and warranty services, a credit card number or purchase order number and authorized signature must accompany any request for service. Standard repair prices may be obtained by contacting a Repair Center.

Warranty: purchased/received date _____

(Enclose proof of purchase or receiving document indicating original received date.)

Maintenance Contract: number _____

_____ VISA_____ MASTER CARD _____AMERICAN EXPRESS

Credit Card Number_____

Expiration Date_____

Signature _____ Date _____

Purchase order number:_____

Billing Address:

_____

_____

Authorized Signature: _____

Phone _____

What needs to be done?

Describe the conditions at the time of failure. (What were you doing when the failure occurred? What software were you running? Is the failure repeatable?)

_____

_____

_____

_____

Additional comments:

_____
_____
_____
_____

Thank you.

Hewlett-Packard Service Centers

Hewlett-Packard Service in the US

Before shipping the optical disk drive for service, call the Customer Support Center at (970) 635-1000.

Hewlett-Packard Company

46732 Lakeview Boulevard

Fremont, California 94538-6534

Telephone (650) 694-3650

Hewlett-Packard Service Worldwide

Hewlett-Packard products are sold and supported worldwide through Hewlett-Packard Sales and Service Offices and through dealers. There are more than 240 Hewlett-Packard Sales and Service Offices worldwide.

For information about where to have your optical drive serviced, call one of the following European Customer Support Center numbers first. Hewlett-Packard regional offices are listed in the table, “HP Sales and Service Offices” on the next page.

European Customer Support Center	(+44) 171 512 5202 (English) 0180 5 25 81 43 (German) 04 50 43 9853 (French)

B Operating This Drive on a SCSI Bus

A Brief Overview of SCSI

General

The Small Computer System Interface (SCSI), is a contention-based bus that accommodates different speed devices without impacting the devices with faster transfer speeds. This specification was defined by the American National Standards Institute (ANSI) in 1986. The specification defines both the physical medium and the command set used to transfer information. Later developments are known under the newer specifications, SCSI-2 and SCSI-3.

The SCSI Bus

The common SCSI buses are 50-pin and 68-pin. The 50-pin bus, which uses eight of its lines for data transmission, is called a "narrow" bus. The narrow bus can support eight devices. The 68-pin bus, which uses 16 lines for data transmission is called a "wide" bus. The wide bus can support 16 devices.

Initiators and Targets

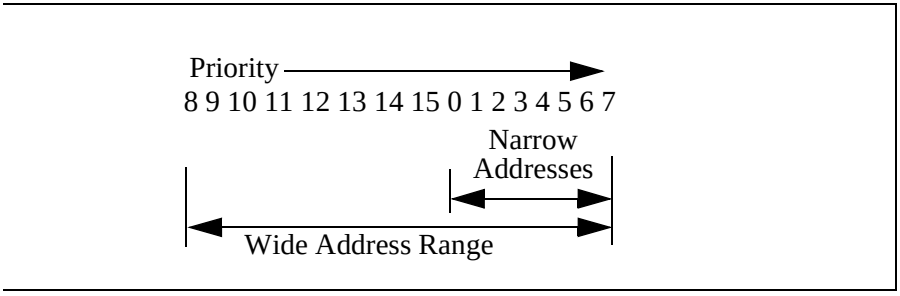
SCSI devices on the bus are either “initiators” or “targets.” An initiator (usually the host computer) originates a transaction and the target (usually a peripheral device) fulfills the request.

Initiators and targets identify themselves on the bus by a SCSI ID. The ID is designated by the user and is set electronically or manually depending on the device. In addition to identifying a device on the bus, the ID also determines the priority of the device during contention among the devices for use of the bus.

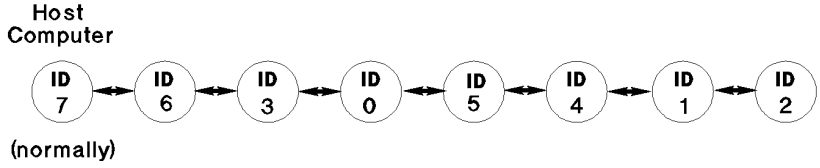
The narrow SCSI bus, with its eight data lines, can communicate with eight devices that have IDs from 0 to 7. The wide SCSI bus, with its 16 data lines, can communicate with 16 devices that have addresses from 0 to 15. The host adapter, which links the host computer to the SCSI bus, is also a SCSI device (initiator), and is usually assigned an ID of 7.

Priority of IDs ascends from lowest to highest but this ascending priority, however, is in blocks of eight IDs, and the block from 8 to 15 is actually defined to be at a lower priority than ID 0, the lowest address on the "narrow" portion of the bus. This is done so that if a narrow device is placed on a wide bus, the wide devices, which can "see" the lower addresses, will always defer to the lower addresses when they contend for the bus. Otherwise, a narrow device, which cannot "see" any device at

an ID greater than 7, would always assume it won the contention and would attempt to talk, perhaps at the same time as a device with an ID above 7 that was contending for the bus. The following diagram shows the priority scale of IDs when the priority of the two blocks of eight are reversed.



The diagram below shows the linear addressing of a simple, narrow bus with the host adapter set at a SCSI ID of 7. The device ID does not determine where the device is physically placed on the bus.



LUN Addressing

This drive does not support logical unit numbering (LUN) addressing

Transfer Rates on the Bus

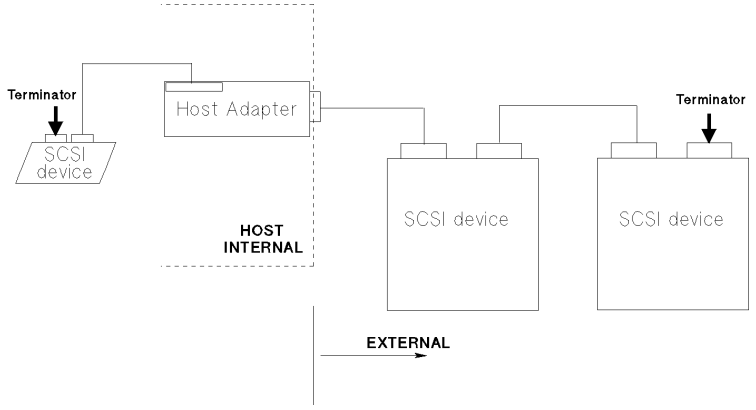
Initially, the SCSI specification defined a 5 MB/s synchronous data transfer rate on the narrow bus. SCSI now also defines "Fast" which is 10 MB/s on a narrow bus and 20 MB/s on a wide bus. Another definition is "Ultra," also known as "Fast-20" which is 20 MB/s transfer rate on a narrow bus and 40 MB/s on a wide bus.

Termination

To keep signals on the SCSI bus from being reflected, “terminators” must be placed at each end of the physical bus. These terminators may be either active or passive. Passive termination is a resistor network. Active termination uses a voltage regulator (the active component) to regulate the power of the resistor network to provide more stable termination. Active termination is always preferred over passive termination.

Depending on your SCSI device, termination is supplied by a using a physical connector, by flipping a dipswitch, or by selecting the termination setting in software.

Termination is always at both physical ends of the bus.



Single-ended and Differential Interfaces

(This drive does not support differential SCSI. The following description is here only for comparison to single-ended SCSI, which the drive supports.)

The SCSI bus is electrically implemented in two ways: single-ended and differential. These terms come from the way the signals are asserted on the bus. Single-ended buses use a 5-volt signal that is referenced to ground. This method makes the bus somewhat susceptible to noise and loss of signal quality over distance. The maximum allowable length of a single-ended SCSI bus was initially 6 meters (19.7 feet). Fast SCSI required the maximum length of the bus to be reduced to 3 meters (9.8 feet).

The differential bus uses two lines for each signal and measures the voltage difference between the two signals. Differential retains more signal quality than single-ended and is not as sensitive to noise, allowing for a longer cable length. The maximum allowable length of a differential bus is 25 meters (82 feet) for all types buses (narrow, wide, fast, Fast-20).

Connectors

Narrow devices (50-pin) use the following connectors:

- 50-pin low-density clip Centronics-type (external)

  This is a large connector that is similar to a printer cable. This type of connector is gradually being replaced by the Micro D connector, described below.

- 50-pin high density Micro D (using thumbscrews or small clips) (external)
- This connector is similar to a D-type connector, but smaller and with smaller pin holes placed closer together.
- 50-pin low-density ribbon (usually internal to the host)

Wide devices (68- pin) use the following connectors:

- 68-pin high density Micro D connector (external)

  This connector is similar to a D-type connector, but longer and slimmer and with smaller pin holes placed closer together. This connector is becoming the most common.

- 68-pin high density ribbon (usually internal to the host)

NOTE

For more complete information on the theory and operation of the SCSI bus, you may want to go to:

Adaptec - major supplier in SCSI buses
www.adaptec.com
Symbios Logic - Working drafts of SCSI specifications
www.symbios.com/x3t10

The SCSI Bus and This Drive

This drive is a “fast and narrow” SCSI device that uses a single-ended SCSI bus.

When deciding on whether to have multiple devices on the same SCSI bus, you should consider the following:

- How are the devices going to be used? What performance is expected from each device?
- If the decision is made to have multiple devices on the same bus, what SCSI requirements must be observed to make sure the bus will work?

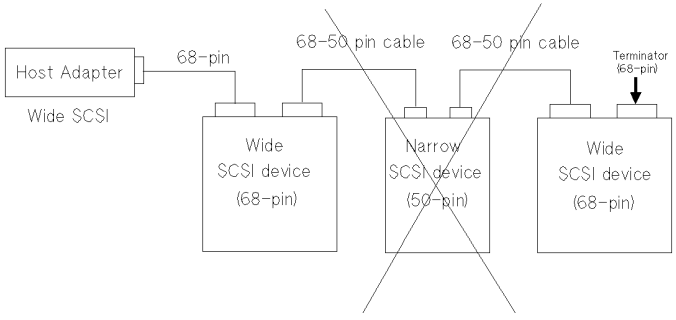
Consider the quantity of data that the bus will have to carry, the frequency of data transfer, and the priority of this data transfer in your business. If you expect to be using the drive in the same time-frame as another device, or devices, you may experience a drop in performance.

Mixing Wide and Narrow Devices

An a preliminary note to this discussion, HP highly recommends that you do NOT mix wide and narrow buses.

Connecting devices of the same bus width, such as all narrow (50-pin) is a simple process of daisy-chaining the devices, and terminating both ends of the bus. However, mixing narrow and wide devices invites problems.

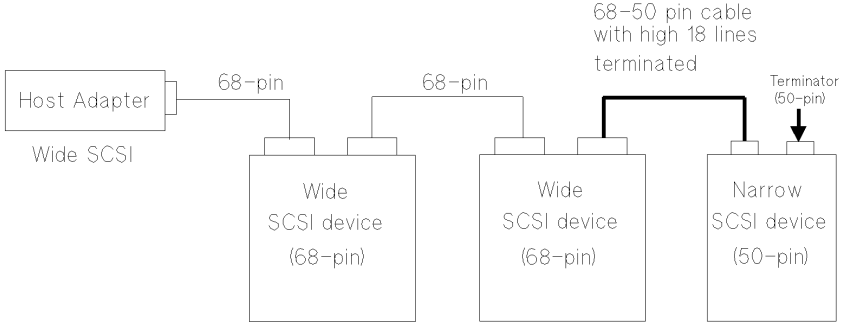
This method should only be implemented by an experienced systems integrator who is highly knowledgeable about SCSI. Since the wide (68-pin) buses need more data lines on the bus for their data transfer, it's necessary that the cables connecting the devices are 68 pin. The data would be lost if the devices were set up as depicted in the figure below.



Because a narrow device only has a 50-pin connector, it will not transmit the eight extra bits of data needed for the wide device on the end of the bus. Using only 50 lines also prevents the narrow device from passing along the IDs of devices at 8 or above.

The lower eight data lines transfer commands and messages, allowing all devices, regardless of size, to co-exist on the bus. However, data transfers and device addressing occur on the higher bits. Since a narrow device can't "see" the upper 8 data bits, that translates to it not being able to "see" wide devices with a SCSI ID above 8. Remember the host adapter is a device, so if you're mixing wide and narrow devices on the bus, your host adapter must be at an ID that all devices can address.

If mixing narrow and wide devices is unavoidable, use the configuration described below:



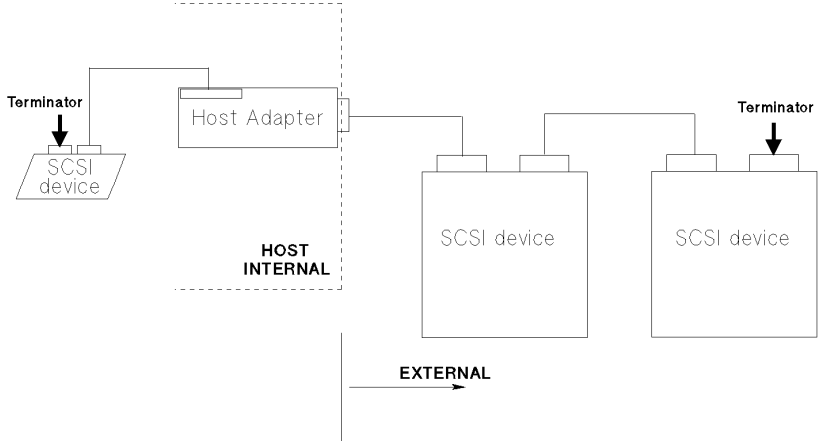
It is very important that the 68-pin to 50-pin cable is properly configured to assure that the eighteen truncated lines are properly terminated.

Cable Lengths

The drive can be mounted only on a single-ended SCSI bus. Because the drive is a "fast" SCSI device, the maximum bus length is 3 meters (9.8 feet). The internal cable length of the drive is .5 meters (1.6 feet) which leaves 2.5 meters (8.2 feet) for the rest of the bus.

Termination

- Refer to the documentation that comes with your particular adapter to see how to apply termination.
- Use active terminators on the single-ended bus to reduce noise sensitivity.
- Never terminate the bus at any place except the physical ends. Terminating the bus in the middle will probably cause the bus to become inoperable or operate in a state that could cause data loss.
- If devices are on both sides of the host computer adapter (such as hard drives internal to the host computer and this drive external to the host computer) make sure that there is no termination on the host computer adapter. Termination must be only on the device inside the computer that is farthest from the host adapter and the physical device inside the computer, and the last physical device external to the computer.



General

- Do not connect a single-ended bus to a differential bus. Damage can occur.

NOTE

For current information on issues relating to installation, operation, and support of this drive, you may want to go to:

HP Optical Storage
www.hp.com/isgsupport/optical/index.html

C Safety and Regulatory Information

Chapter Overview

This section contains important safety and regulatory information for the United States, Finland, Sweden, Germany, United Kingdom, European Union, and Japan.

CDRH Regulations (USA Only)

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The labels and artwork shown below indicate compliance with CDRH regulations and must be attached to laser products marketed in the United States.

WARNING **Use of controls, adjustments or performing procedures other than those specified in this manual may result in hazardous laser radiation exposure.**

NOTE Complies with 21 CFR Chapter 1 Subchapter J.

Laser Class Information: A black on yellow label which reads, "Class 1 Laser Product" printed in English, French, German, Finnish, Japanese, and Spanish.

United Kingdom Telecommunications Act 1984

The HP SureStore Optical 5200ex jukeboxes are approved under Approval Number NS/G/1234/J/100003 for indirect connection to Public Telecommunication Systems within the United Kingdom.

EC Declaration of Conformity

Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Co.

Manufacturer's Address: Storage Systems Division
700 71st Avenue
Greeley, CO 80634 USA

declares, that the product

Product Name: Optical Disk Drive

Model Numbers: C1114x, Where x is any alpha character (all w or w/o suffixes)

Product Options: All Options

conforms to the following Product Specifications:

Safety: EN 60950: 1992+A1+A2:1993+A3:1995/IEC950(1991)+A1+A2+A3
EN 60825-1 (1994) / IEC825-1 (1993), Laser Class 1

EMC: EN 55022 (1994) / CISPR 22 (1993), Class B
EN 50082-1 (1992)
prEN 55024-2 (1992) / IEC 1000-4-2 (1995), 4 kV CD, 8 kV AD
prEN 55024-3 (1991) / IEC 1000-4-3 (1995), 3 V/m
prEN 55024-4 (1993) / IEC 801-4-4 (1988), 1 kV Peak Power Lines
0,5 kV Signal Lines
EN 61000-3-2 (1995) / IEC 1000-3-2 (1995), Harmonics
EN 61000-3-3 (1995) / IEC 1000-3-3 (1994), Flicker

Supplementary Information:

The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly: the EMC Directive 89/336/EEC -the Low Voltage Directive 73/23/EEC (including 93/68EEC)

The Manufacturer listed above declares that this product has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: a) Reorient or relocate the receiving antenna, b) Increase the separation between the equipment and receiver, c) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, or d) Consult the dealer or an experienced radio/TV technician for help.

Change or modification of this equipment not expressly approved by Hewlett-Packard could void the user's authority to operate this equipment. Only use the cables, connectors, power cords, and accessories supplied with this equipment or expressly approved by Hewlett-Packard.

Storage Systems Division March, 1998 Greeley, Colorado, USA

For Regulatory Compliance Information ONLY, contact:

Australian: Product Regulations Manager, Hewlett-Packard, Australia Ltd., 31-41 Joseph Street, Blackburn, Victoria 3130, Australia

European: Your local Hewlett-Packard Sales and Service Office or Hewlett-Packard GmbH, Department TRE, Herrenberger Strasse 130, D-71304 Boblingen (FAX:+49-7031-14 3143

USA: Product Regulations Manager, Hewlett-Packard Company, 700 71st Avenue, Greeley, CO 80634 USA, (Phone: 970-350-5600).

Herstellerbescheinigung

Diese Information steht im Zusammenhang mit den Anforderungen der Maschinenlärn information sverordnung vom 18 Januar 1991.

Schalldruckpegel Lp < 70 dB(A)

- am arbeitsplatz
- normaler betrieb
- nach ISO 7779:1988/EN 27779:1991 (Typprüfung)

English Translation of German Sound Emission Directive

This statement is provided to comply with the requirements of the German Sound Emission Directive, from 18 January 1991.

Sound pressure Lp < 70 dB(A)

- at operator position
- normal operation
- according to ISO 7779: 1988/EN 27779: 1991 (type test)

Turvallisuusyhteenveto

Laserturvallisuus

LUOKAN 1 LASERLAITE

KLASS 1 LASER APPARAT

HP SureStore Optical 5200ex optiset levymuistiasemat ovat käyttäjän kannalta turvallisia luokan 1 laserlaitteita. Normaalissa käytössä levymuistiaseman kotelointi estää lasersäteen pääsyn laitteen ulkopuolelle.

Laitteen turvallisuusluokka on määritetty standardin EN 60825 mukaisesti.

VAROITUS !

Laitteen käyttäminen muulla kuin käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle lasersäteilylle.

VARNING !

Om apparaten används på annat sätt än i bruksanvisning specificerats, kan användaren utsättas för laserstrålning, som överskrider gränsen för laserklass 1.

Huolto

HP SureStore Optical 5200ex levymuistiasemien sisällä ei ole käyttäjän huollettavissa olevia kohteita. Laitteen saa avata ja huoltaa ainoastaan sen huoltamiseen koulutettu henkilö. Levymuistiaseman sisälle asennettujen luku-/kirjoitusyksiköiden suojakoteloa ei tule avata huoltotoimenpiteiden yhteydessä.

VARO !

Mikäli luku-/kirjoitusyksikön suojakotelo avataan ja suojalukitus ohitetaan, olet alttiina lasersäteilylle laitteen ollessa toiminnassa. Älä katso säteeseen.

VARNING !

Om skyddshöljet av den optiska drivmodulen öppnas och spärren urkopplas då apparaten är i funktion, utsättas användaren för laserstrålning. Betrakta ej strålen.

Tiedot luku-/kirjoitusyksikössä käytettävän laserdiodin säteilyominaisuuksista:

Aallonpituus	680 nm
Teho	60 mW
Turvallisuusluokka	3B

English Translation of Finland Regulatory Information

LASER SAFETY SUMMARY

LASER SAFETY

CLASS 1 LASER PRODUCT (The same in Swedish.)

HP SureStore Optical 5200ex jukeboxes are for user safe class 1 laser products. In normal use the enclosure of the optical drives prevents the laser beam from escaping outside of the product.

The jukeboxes were type approved in Finland for laser safety by the National Board of Labour Protection. The safety class of the products was defined according to the resolution No 472/1985 of the Council of State and the standard EN 60825.

WARNING !

The use of the product otherwise than specified in the user's manual may expose the user to laser radiation exceeding safety class 1.

(The same warning in Swedish.)

SERVICE

There are no user serviceable parts inside the jukeboxes. The jukebox products can be serviced only by qualified service personnel. The optical drive mechanism(s) installed inside the library system shall not be opened or disassembled during service.

WARNING !

If the enclosure of the optical drive mechanism is opened and the safety interlock disabled, you may be exposed to the laser radiation when the drive is operating. Avoid exposure to the beam.

(The same warning in Swedish.)

The information about the radiation characteristics of the laser diode used in the optical drive mechanism:

Wavelength	680 nm
Power	60 mW
Class	3B laser

Japanese VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると受信障害を引き起こすことがあります。
取り扱い説明書に従って正しい取り扱いをして下さい。

This equipment is in the Class B category information technology equipment based on the rules of Voluntary Control Council for Interference by Information Technology Equipment (VCCI). Although aimed for residential area operation, radio interference may be caused when used near a radio or TV receiver. Read the instructions for correct operation.

Japanese VCCI Statement

Glossary

C-D

cartridge A plastic enclosure that contains an optical disk. The cartridge is labeled "A" or "B" to denote separate sides of the optical disk. The optical disk is never removed from the cartridge.

disk See optical disk.

driver A program that allows the operating system to communicate with a peripheral device.

M-O

magneto-optical A type of optical technology which uses a laser to read from and write to a magnetic layer on an optical disk. To write, a spot on the magnetic layer is heated by a laser to a point where it can be magnetically altered by the write magnetic head. To read, a light from the laser is reflected from the spot. The magnetic alteration causes the reflected light to be polarized in one direction (interpreted as a "1") or the opposite direction (interpreted as a "0").

multifunction drive An optical disk drive that supports both rewritable and write-once optical disks. The drive detects the disk type by reading a factory-stamped code on the disk, and automatically determines whether to operate in rewritable or write-once mode.

optical disk A term synonymous with the 5.25-inch magneto-optical disk. There are two types of optical disks used in jukeboxes: rewritable and write-once.

R-T

rewritable optical An optical disk technology in which data can be repeatedly written using magneto-optical reading and writing technology.

SCSI An acronym for the Small Computer Systems Interface.

terminator A resistor array device used for electrically terminating a SCSI bus. A SCSI bus must be terminated at its two physical ends. A peripheral device uses a terminator only if it is at the end of the bus.

W

write-once An additional operating mode available with multifunction drives. When a write-once disk is inserted, the drive will write data, but will not write over data that has been previously written. This feature is useful for applications that need permanent data security and audit trails.

write protect A feature that prevents data from being written to a disk. A write protect tab is located on both sides of the optical disk cartridge to enable write-protection on one or both surfaces of the disk.

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